

**REMARKS****Summary of the Office Action**

Claims 1 and 3 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by JP 2001-13047 to Kinoshita (hereinafter “Kinoshita”).

Claims 4 and 6-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita.

Claims 2 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita in view of U.S. Patent No. 7,153,272 to Talton (hereinafter “Talton”).

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita in view of Aoki et al. (JP 10179747) (hereinafter “Aoki”).

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita in view of Talton and further in view of U.S. Patent No. 5,602,326 to Takahashi et al. (hereinafter “Takahashi”).

**Summary of the Response to the Office Action**

Applicants have amended independent claims 1 and 3 to differently describe embodiments of the disclosure of the instant application and/or to improve the form of the claims. Claims 2, 4 and 9 have been canceled without prejudice or disclaimer. Accordingly, claims 1, 3, 5-8 and 10 currently remain pending for consideration.

**Rejections under 35 U.S.C. §§ 102(b) and 103(a)**

Claims 1 and 3 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Kinoshita. Claims 4 and 6-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over

Kinoshita. Claims 2 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita in view of Talton. Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita in view of Aoki. Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita in view of Talton and further in view of Takahashi.

Applicant has amended independent claims 1 and 3 to differently describe embodiments of the disclosure of the instant application and/or to improve the form of the claims. To the extent that these rejections might be deemed to still apply to the claims as newly-amended, they are respectfully traversed for at least the following reasons.

Applicants have newly-amended independent claim 1 to describe an advantageous combination of features including features of previous claim 2 and also including features as described, for example, in paragraph [0026] of the specification of the instant application. Accordingly, claim 2 has been canceled without prejudice or disclaimer. Independent claim 3 of the instant application has been amended to describe an advantageous combination of features including features of previous claims 4 and 9. Accordingly, claims 4 and 9 have been canceled without prejudice or disclaimer.

Applicants respectfully submit that as a result of the advantageous combination of features of the gas detection method of newly-amended independent claim 1 of the instant application, when the sensor element is recovered with oxygen, as water vapor is supplied together with the oxygen thereto, the recovery performance is improved and the response speed to the detection target gas is increased. With these features, Applicants respectfully submit that the sensor sensitivity is also improved. As a result, Applicants note that detection with a faster response and a higher sensitivity, as compared with conventional methods, is made possible.

Further, Applicants respectfully submit that as the target gas is detected as a component gas separated in a separation column, even when the detection target gas contains a plurality of component gases, reliable detection with fast response and good sensitivity for each component gas is possible.

On the other hand, Applicants respectfully submit that, while Kinoshita discloses a gas detection method which detects a detection target gas containing water vapor, while oxygen is being supplied to a sensor element of metal oxide type sensor, Kinoshita fails to disclose the method of detecting a detection target gas while water vapor and oxygen are supplied to the sensor element. Moreover, Applicants respectfully submit that the determining device described in Kinoshita is configured to supply the detection target gas containing water vapor, for the purpose of investigating adverse effect of water vapor to the detection target gas. Applicants respectfully submit that this is an entirely different technical concept from that of the invention of the instant application which is configured to intentionally supply water vapor together with oxygen to the sensor element for the purpose of achieving a faster sensor response to the detection target gas.

In addition, Applicants respectfully submit that Kinoshita also does not disclose the detection of the detection target gas as a component gas after separation in a separation column.

Turning now to the cited Talton reference, Applicants respectfully submit that Talton describes a standard technique for detecting a component gas contained in a detection target gas and separated in a separation column, by means of a sensor element of a metal oxide type gas sensor. However, Applicants respectfully submit that Talton does not describe or teach supplying oxygen and water vapor to the sensor element. Also, Applicants respectfully submit that even if the invention disclosed in Kinoshita, which supplies water vapor to the sensor

element together with detection target gas, were combined with the invention described in Talton, the resultant combined invention would be limited to supplying a detection target gas containing water vapor to a separation column. In this case, Applicants respectfully submit that as the water vapor would be separated in the separation column, it would not be possible to normally supply a predetermined concentration of water vapor together with oxygen to the sensor element, for detection of the component gas.

Turning now to the cited Aoki reference, Applicants respectfully submit that Aoki discloses only a standard technique for a humidified oxygen supply means, and is thus not related to the art of the gas detection.

Turning now to the cited Takashi reference, Applicants respectfully submit that Takashi discloses a conventional technique for determining a detection target gas with a concurrent supply of oxygen. Applicants respectfully submit that Takashi is completely silent about, i.e., does not describe or teach, the supply of water vapor.

As discussed above, Applicants respectfully submit that the characterizing construction and the function/effect of the subject matter described in the advantageous combination of features of newly-amended independent claim 1 of the instant application are completely different from those of the respective disclosures of the cited references. Also, Applicants respectfully submit that none of the cited references, taken separately or combined, describe or suggest the concept of supplying water vapor for the purpose of achieving a faster response to a detection target gas. As such, even with reference to these cited references, Applicants respectfully submit that one skilled in the art could not have arrived at the inventive construction of supplying water vapor together with oxygen to the sensor element, in detection of a detection target gas as a component gas separated in a separation column.

Therefore, Applicants respectfully submit that the advantageous combination of features of newly-amended independent claim 1 of the instant application is not disclosed, or even suggested, by the cited references, whether taken separately or in combination with each other, and thus should be allowable over the same.

Independent claim 3 of the instant application has also been newly-amended to describe an advantageous combination of features including features similar to those described in newly-amended independent claim 1 of the instant application. Accordingly, Applicants respectfully submit that similar arguments as discussed above with regard to newly-amended independent claim 1 also apply to newly-amended independent claim 3 of the instant application.

Accordingly, Applicants respectfully assert that the rejections under 35 U.S.C. §§ 102(b) and 103(a) should be withdrawn because Kinoshita and Talton, whether taken separately or combined, do not teach or suggest each feature of newly-amended independent claims 1 and 3 of the instant application. As pointed out in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim." Thus, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. Of California*, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987)." Also, MPEP § 2143.03 instructs that "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)."

Furthermore, Applicants respectfully assert that the dependent claims are allowable at least because of their dependence from independent claim 1 or 3, and the reasons discussed previously. In regard to the additionally applied references to Aoki with regard to dependent claim 5 and Takahashi with regard to dependent claim 10, Applicants respectfully submit that

these additionally applied references do not cure the deficiencies discussed previously with regard to Kinoshita and Talton.

**CONCLUSION**

In view of the foregoing, Applicants submit that the pending claims 1, 3, 5-8 and 10 are in condition for allowance, and respectfully request reconsideration and timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution. A favorable action is awaited.

**EXCEPT** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

**DRINKER BIDDLE & REATH LLP**

  
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